CLAIMS

1. A method for reducing interference due to handshake tones in the frequency domain, the method comprising the steps of:

receiving an input signal in the frequency domain having a short correlation time component and a long correlation time component;

generating a delayed signal by delaying the input signal by a delay value;

generating a prediction signal based at least in part on the delayed signal;

comparing the input signal and the prediction signal; and

minimizing a variance between the input signal and the prediction signal.

2. The method of claim 1, wherein the input signal is a corrupted frequency domain ADSL signal at a predetermined bin of a predetermined time-symbol.

3. The method of claim 1, wherein the delay value is a time-symbol value.

4. The method of claim 1, wherein the delay value is one symbol, wherein the one symbol represents approximately 512 time domain samples.

5. The method of claim 1, wherein the delay value comprises a predetermined time symbol value.

6. The method of claim 1, wherein NEXT interferences due to handshake tones are reduced.

7. The method of claim 1, wherein FEXT interferences due to handshake tones are reduced.

8. The method of claim 1, wherein the steps are performed at a CPE end.

9. The method of claim 1, wherein the steps are performed at a CO end.

10. The method of claim 1, wherein the prediction signal is generated by a causal filter.

11. The method of claim 10, wherein the causal filter uses historical data to generate the prediction signal.

12. The method of claim 10, wherein the causal filter uses at least one past disturbance signal to generate the prediction signal.

13. The method of claim 1, wherein the step of minimizing is performed by at a least mean square algorithm.

14. The method of claim 1, wherein the input is correlated to a disturbance signal.

15. A method for reducing interference due to handshake tones in the frequency domain, the method comprising the steps of:

receiving an input signal in the frequency domain having a short correlation time component and a long correlation time component;

generating an error signal in the frequency domain wherein the error signal comprises the long correlation time component;

generating a delayed signal by delaying the error signal by a delay value;

generating a prediction signal based at least in part on the delayed signal;

comparing the input signal and the prediction signal; and

minimizing a variance between the input signal and the prediction signal.

16. The method of claim 15, wherein the prediction signal is a prediction of a disturbance signal.

17. The method of claim 16, wherein the disturbance signal is the long correlation time component.

18. The method of claim 15, wherein the error signal comprises a residual noise component.

19. The method of claim 15, wherein the error signal is generated by demodulating the input signal.

20. The method of claim 15, wherein NEXT interferences due to handshake tones are reduced.

21. The method of claim 15, wherein FEXT interferences due to handshake tones are reduced.

22. The method of claim 15, wherein the steps are performed at a CPE end.

23. The method of claim 15, wherein the steps are performed at a CO end.

24. The method of claim 15, wherein the prediction signal is generated by a causal filter.

25. The method of claim 24, wherein the causal filter uses historical data to generate the prediction signal.

26. The method of claim 24, wherein the causal filter uses at least one past disturbance signal to generate the prediction signal.

27. The method of claim 15, wherein the step of minimizing is performed by a least mean square algorithm.

28. The method of claim 15, wherein the input is correlated to a disturbance signal.

29. A system for reducing interference due to handshake tones in the frequency domain, the system comprising:

an input for receiving an input signal in the frequency domain having a short correlation time component and a long correlation time component;

a delay module for generating a delayed signal by delaying the input signal by a delay value; and

a filter for generating a prediction signal based at least in part on the delayed signal; wherein the input signal and the prediction signal are compared and a variance between the input signal and the prediction signal is minimized.

30. The system of claim 29, wherein the input signal is a corrupted frequency domain ADSL signal at a predetermined bin of a predetermined time-symbol.

31. The system of claim 29, wherein the delay value is a time-symbol value.

32. The system of claim 29, wherein the delay value is one symbol, wherein the one symbol represents approximately 512 time domain samples.

33. The system of claim 29, wherein the delay value comprises a predetermined time symbol value.

34. The system of claim 29, wherein NEXT interferences due to handshake tones are reduced.

35. The system of claim 29, wherein FEXT interferences due to handshake tones are reduced.

36. The system of claim 29, wherein the system resides at a CPE end.

37. The system of claim 29, wherein the system resides at a CO end.

38. The system of claim 29, wherein the prediction signal is generated by a causal filter.

39. The system of claim 38, wherein the causal filter uses historical data to generate the prediction signal.

40. The system of claim 38, wherein the causal filter uses at least one past disturbance signal to generate the prediction signal.

41. The system of claim 29, wherein the variance is minimized by a least mean square algorithm.

42. The system of claim 29, wherein the input is correlated to a disturbance signal.

43. A system for reducing interference due to handshake tones in the frequency domain, the system comprising:

an input for receiving an input signal in the frequency domain having a short correlation time component and a long correlation time component;

a module for generating an error signal in the frequency domain wherein the error signal comprises the long correlation time component;

a delay module for generating a delayed signal by delaying the error signal by a delay value; and

a filter for generating a prediction signal based at least in part on the delayed signal; wherein the input signal and the prediction signal are compared and a variance between the input signal and the prediction signal is minimized.

44. The system of claim 43, wherein the prediction signal is a prediction of a disturbance signal.

45. The system of claim 44, wherein the disturbance signal is the long correlation time component.

46. The system of claim 43, wherein the error signal comprises a residual noise component.

47. The system of claim 43, wherein the error signal is generated by demodulating the input signal.

48. The system of claim 43, wherein NEXT interferences due to handshake tones are reduced.

49. The system of claim 43, wherein FEXT interferences due to handshake tones are reduced.

50. The system of claim 43, wherein the system resides at a CPE end.

51. The system of claim 43, wherein the system resides at a CO end.

52. The system of claim 43, wherein the prediction signal is generated by a causal filter.

53. The system of claim 52, wherein the causal filter uses historical data to generate the prediction signal.

54. The system of claim 52, wherein the causal filter uses at least one past disturbance signal to generate the prediction signal.

55. The system of claim 43, wherein the variance is minimized by a least mean square algorithm.

56. The system of claim 43, wherein the input is correlated to a disturbance signal.